REPORT

of the

ELEVENTH NORTHEASTERN CORN IMPROVEMENT CONFERENCE

New York City
March 2-3, 1956

Reported by
Merle T. Jenkins, Secretary

Field Crops Research Branch
Plant Industry Station, Beltsville, Md.
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March 2-3, 1956

Reported by Merle T. Jenkins, Secretary

The meetings of the Eleventh Northeastern Corn Improvement Conference were held in the Henry Hudson Hotel, New York City on March 2 and 3, 1956. The Conference held 2 general sessions, the first in the early afternoon and the second in the evening of March 2. In addition the Sweet Corn and Field Corn Sections each held two separate meetings.

A total of 38 workers representing 13 states, the U. S. Department of Agriculture, one Canadian Province and two producers of open-pedigree hybrids, were in attendance.

GENERAL SESSIONS OF THE CONFERENCE

The first general session of the Conference was called to order by Chairman R. S. Snell at 1:15 p. m. in the West room of the Henry Hudson Hotel. Dr. Snell appointed a nominating committee consisting of W. H. Lachman, H. M. Yegian and J. C. Anderson, Chairman.

Dr. G. Fred Somers, Associate Dean and Director, School of Agriculture, University of Delaware who recently was appointed by the Northeast Directors to act as Administrative Advisor for the Northeastern Corn Improvement Conference then was introduced by Chairman Snell. Dr. Somers discussed his function as laison officer between the Corn Improvement Conference and the Northeastern Directors.

M. T. Jenkins reported on the cooperative program of corn improvement in several of the Mediterranean countries he visited recently. This cooperative work is organized by the Southern Regional Committee of the European Hybrid Maize Conference sponsored by FAO. Much progress is being made in the development of a regional program of corn improvement in this area. Plans for the regional work as developed at the annual FAO Hybrid Maize Meetings include the cooperative testing of breeding material and the exchange of promising new inbred lines.

R. S. Filmer presented the following notes on the control of insects on sweet corn based on experiences with insect pests in New Jersey.

Seed Treatment - Seed corn maggot and wireworms.

The use of one of the standard seed treatments on early plantings of sweet corn when seed germination is retarded due to low soil temperatures has given excellent control of these pests, with an increase in plant stand of uniform vigor. This treatment has been generally adopted by growers for their early plantings.

Seed treatment (per bushel of seed)

Insecticide - 50 o/o w.p. chlordane, 1 oz., or
25 o/o w.p. lindane, 1 oz., or
25 o/o w.p. dieldrin, 1 oz.

Fungicide - Arasan, 2 ozs., or
Spergon, 2 ozs., or
Captan (manufacturers' recommendation)

Sticker - 4 o/o Methocel sol. 1/2 pint.

Commercial products are available.

Corn flea beetle - Bacterial wilt carrier.

The corn flea beetle is an early season pest, attacking the corn when the first leaves unfurl. The small beetles are very active and hop or jump from plants when disturbed. The beetles eat small holes in the leaves as the plants emerge.

Control measures. - Ten to 15 lbs. per acre of a 5 o/o DDT dust as soon as plants emerge or beetles or plant injury is observed. Repeat application when beetles reappear. Three applications have proven best.

European corn borer

There may be one or two generations of this pest per season. The borers tunnel in stalks, ears and tassels and high populations may cause lodging tassel breakage or death of plant before ears mature.

Control measures.- Experiment Stations should be consulted for local recommendations. Dust or spray applications of Ryania or DDT-malathion or DDT should be applied when eggs start to hatch. Four applications at 5-day intervals usually recommended. Granular dust applications in the whorl stage have given protection from 10 to 15 days.

Corn earworm

This insect does not normally overwinter in New Jersey but migrates into the state during the summer period and usually becomes a pest during the late

summer period. The chief injury is to the developing kernels of the ears of corn. On late plantings of corn, the eggs are laid on the fresh silks or on hairs on the leaf sheaths. Larvae hatching from eggs on the silks usually feed on the silks until they reach the tip of the ear where they feed on the kernels. Larvae hatching from eggs laid on the leaf sheaths may enter the base or side of ear. The small larvae are cannibalistic, consequently a single larvae is usually found in each ear. Feeding is usually locallized when the kernels are soft, and the entire kernel is consumed. As the kernels mature and harden, the larvae present wander about feeding on the softer portions of the kernels. Late in the season, a high percent of the kernels in an ear may be nicked on the edges by feeding worms. This type of injury is usually not severe enough to interfere with germination of the seed but is a real problem to seed corn producers of certified seed, as the injured kernels must be removed by a hand-picking operation.

Control measures.- Proper timing of the insecticide applications is very important. For late plantings of corn, dust with 5 °/o DDT when silks are 2-4 days old, repeat in 4 days. Earlier applications may be necessary if worms are present.

Seed corn must be protected until it is harvested. Best results in New Jersey have been obtained by using $2\frac{1}{2}$ to 3 quarts of 25 °/o DDT plus 2.5 gallons of emulsified mineral oil (Viscosity 80-90) say in 25 gallons or preferably more gallons of water. Use 75 to 100 pounds pressure. The number of applications will be dependent on the number of moths present during the late summer period. Two or more applications at 10-day intervals may be required.

Corn sap beetles

These insects are a major pest of the sweet corn grower in New Jersey. The larvae attack and hollow out individual kernels throughout the ear, although they are commonly found in ears damaged by corn earworm. In seed corn products, they are not considered a major pest as the hollowed-out kernels are broken up and screened out during the shelling operation. The number of injured kernels per ear can be considerable where sap beetle populations are high.

Control measures.- DDT program for earworm gives fair control. Two pounds 50 °/o w.p. DDT + 2 lbs. of 25 °/o w.p. malathion per acre as a spray will improve control of both earworm and sap beetles.

A. J. Ullstrup reported on disease problems in corn with particular reference to stalk rot. In the central and eastern Corn Belt, Diplodia is the most important stalk rotting organism. Gibberella is more important than Diplodia in some of the eastern states. Pythium butleri occurrs sporadically in areas of high temperature and high relative humidity. Charcoal rot is important in some of the drier areas of the West. Fusarium will cause stalk rot under some conditions. Stalk rot causes early drying of the stalk and leaves and may

reduce yields. The season of 1955 was hot and dry in late August and early September and stalk rot was very prevalent. Corn ripened prematurely and the stalks were susceptible to disease. Leaf blights or any other agency reducing the functioning leaf area of the plant tend to predispose the plant to stalk rot. Mineral nutrition is important and it is thought that low levels of potassium predispose plants to stalk rot but there is no good research evidence to prove this point. High N also tends to predispose the plant to stalk rot. Resistance is influenced by the genetic constitution of the host plant with the early maturing lines and hybrids usually more susceptible. Little is known about the nature of disease resistance. Work at the Wisconsin Agricultural Experiment Station has indicated that a substance extracted from the stalks of resistant plants inhibit the growth of disease organism in culture. The amount of this material could not be influenced by covering the ears or clipping the leaves. Dr. Ullstrup reviewed various methods of inoculating stalks with disease including the use of hypodermic injections and toothpicks carrying the disease organisms. He also showed slides illustrating various stalk rots and leaf blights.

C. L. W. Swanson discussed data on the effect of soil compaction on corn growth and yield obtained in experiments conducted in Connecticut. Significant differences were obtained among the rotations compared. The 3-year rotation gave the highest yield, required the smallest number of strokes to reach a given level from 0-6", had the highest noncapillary and total porosity at a given level from 0-6", the smallest bulk density and the highest organic carbon when compared to the 2-year rotation and continuous corn plots. The continuous corn plots have the smallest yields, hardest most dense and least porous soil and the lowest organic carbon content.

There were significant differences among the cultivated and uncultivated treatments with the cultivated plots yielding more corn per acre on the average than the uncultivated plots. The soil of the cultivated plots were softer to a depth of two inches, had a larger noncapillary and total porosity and a lower bulk density than the uncultivated plots. The soil in the 4-6 inch layer of the cultivated plots was harder, had lower noncapillary and total porosity values and a higher bulk density than that of the uncultivated plots.

These differences in soil physical properties show that cultivation is beneficial in loosening the soil surface, breaking up any crusts that may have formed, making conditions more conducive for movement of gases in or out of the soil. Cultivation is deleterious in packing the soil, especially in the tractor wheel area and below the cultivation zone and in accelerating oxidation of organic carbon. However, if the organic carbon is maintained at a high level there is little need for cultivation for breaking the soil crust for the increased organic carbon produces a loose, friable soil structure. Cultivation then is necessary only for weed control.

The size of corn ears and percentage of nitrogen in the grain substantiated the general result that cultivation was significantly better than the other methods of weed control for producing higher yields and better quality corn.

The size of corn ears also confirmed the fact that 3-year rotations are significantly better than either 2-year rotation or continuous corn for highest corn production.

This research strongly suggests that highest yields can be obtained with minimum cultivation, but before minimum cultivation can be practiced the soils must be high in organic matter and in good structure so that surface crusting and compaction will be minimized. Therefore, it is to the advantage of a farmer to keep the organic matter supply of his soil at a high level for increased yields and lower tillage costs resulting from cultivations.

The general session adjourned at 3:30 p.m., for meetings of the Field Corn and Sweet Corn Sections of the Conference.

The second general session of the Conference followed the dinner banquet which also was held in the West Room of the Henry Hudson Hotel. The meeting was called to order by Chairman Snell at 8:00 p.m. The early portion of the evening was devoted to committee reports. These reports follow:

Report of the Nominating Committee

Committee Chairman J. C. Anderson reported that the Committee nominated R. M. Bailey for Vice Chairman for the ensuing year.

It was MOVED that the nominations be closed and Dr. Bailey declared unanimously elected.

Seconded and passed.

Chairman Anderson then reported that the Nominating Committee suggested the last Friday and Saturday of February as a suitable date for the 1957 meeting.

It was MOVED by R. G. Wiggans that the arrangements for the 1957 meeting be left to the Executive Committee.

Seconded and passed.

Chairman Anderson reported that the Committee was satisfied with New York as a meeting place and MOVED that the Executive Committee also decide on the town and hotel for the 1957 meeting.

Seconded and passed.

Report of the Committee on Nomenclature for Cytoplasmic Sterility and Restorers

Maternally inherited pollen abortion is apparently due to some condition outside of the nucleus. The use of the gene symbol Ms or ms is quite confusing and should be avoided. Numbers are needed to indicate the generations of backcrossing. For many years we have used a capital letter to designate the source of the sterile cytoplasm; T for the Mexican June source from Texas and S for the teopod iojap source from the U.S.D.A., and A, B, C, etc., for additional sources. If desirable for publication this letter could be followed by cms or other designation to indicate a cytoplasmic condition of male sterility.

Since the pollen restorers are genes in the chromosomes they should have a gene symbol as soon as they are definitely located in the chromosome and adequately identified. We prefer the single letter F, but R or Rf are appropriate and usable. As there are an unknown number of restoring genes these can be designated by a number following the gene symbol as soon as they are positively identified and located. Until this is done we prefer to use the inbred or varietal source enclosed in parentheses. It has been shown that many sources have more than one restoring gene. Some of these restore the S type of cytoplasm and some the T type. No specific gene symbols can be assigned to them as yet.

According to this system any inbred such as C103 when converted to sterile cytoplasm is designated C103T, C103S (or A, B, C, etc.). Until converted to type it should be written C103T1 (2,3,4,5, etc.) to show the number of backcrosses When converted to type the number can be dropped. If such a sterile inbred is also restored to fertility it is written C103TF (1,2,3,4,5, etc. generations backcrossed) with the source following in parentheses, as C103T5F5 (Ky21), or simply C103TF (Ky21), or C103TF1 (F1 being a gene from Ky21 or other sources that has been located and so designated). If there is any confusion the letter indicating the type of cytoplasm can be enclosed in a box: C103[T] F1, or written C103TcmsF1 (2,3,4, etc.). Ordinarily gene symbols are not used with inbred designations and we find no serious confusion in using single letters for both the cytoplasmic condition and the fertility restoring genes.

Either the symbol for type of cytoplasm and that for fertility restoration can be used alone, such as C103T or C103F, as the case may be.

If R or Rf are preferred by the majority to F we will go along with this usage for publication, but find that F is easier to write and quite distinct. It is very important that we adopt some common usage as soon as possible for publication and for labeling released inbreds. For that reason we should all go along with the preference of the majority in this matter even though it does not meet with our own approval.

H. L. Everett
R. S. Snell
G. H. Stringfield
D. F. Jones, Chairman

Report of the Committee on Diseases and Insect Pests of Corn

Stalk rot ratings were to have been made on the group of inbreds used in making 3-way crosses. The drought made conditions so abnormal that data on these lines could not be taken.

A study of stalk rot (Gibberella zeae) was made at Cornell University in 1955. The following observations were made:

1. The disease is increasingly important as the plant approaches physiological maturity.

2. No hybrid tested was completely resistant to stalk rot.

3. No loss in yield is experienced unless symptoms are evident before physiological maturity.

4. Losses due to the disease were computed at from 1 to 7 percent.

5. Considerable loss was experienced in harvesting and also general quality was lowered as a result of the disease.

Dr. Robert Filmer reported on study of earworm and fall army worm control. One spraying with DDT at the proper time reduced damage to ears from 90 percent in the check to 30 percent in the treated portions. The chief difficulty is in knowing when to make that application. In order to be sure, three applications should be made at about 10-day intervals beginning about the end of the first week of August.

J. C. Anderson
C. W. Boothroyd

Report of the Committee on Pollinating Supplies

During the summer of 1955, tassel and ear shoot bags made according to the approved specifications were distributed to eleven conference members. Seven reports on bag performance were received. Five favorable reports were recorded for both tassel and shoot bags. One report indicated that the shoot bags were unsatisfactory. Two reported tassel bags were good for the price, but a better quality of bags is available. Two reported that the shoot bags were too large.

A pooled order was attempted for 1956 needs. Three members ordered 215M shoot bags and two members ordered 25M tassel bags. Potential users of tassel bags number from 5 to 8, and of shoot bags from 7 to 10. The practice of

two-year supplies, and alternating between tassel and shoot bags each year seems common. If the group could arrange to coordinate their purchase plans, an effective pool purchase plan could be achieved.

An order for 350M shoot bags (the minimum accepted) was placed with the Carter Paper Company on February 7 at a price of $3.02/M. Of this order, 135M shoot bags are unassigned. No order was placed for tassel bags; members were asked to deal with their regular suppliers on this item.

D. L. Matthews, Chairman

Following the committee reports J. C. Anderson reported on his experiences during the two years spent in Indonesia. He showed many beautiful Kodachrome pictures taken in Java, Samatra and Bali.

MEETINGS OF THE SWEET CORN SECTION

A separate sweet corn section of the Northeastern Corn Improvement Conference was initiated in 1956. Two separate meetings were held with a total of 31 in attendance. The first meeting was held on the morning of March 2 ahead of the General Conference and the second in the late afternoon of the same day.

The morning meeting was called to order by Chairman D. W. Barton at 9:05 a. m. in the West Room of the Henry Hudson Hotel. Chairman Barton reported on the organizational meeting of the Northeastern Sweet Corn Technical Committee held on March 1. A regional project entitled "Breeding Adapted Sweet Corn Hybrids for the Northeast" was prepared by the Technical Committee comprising of appointed representatives from seven experiment stations and assisted by Dr. G. Fred Somers, Administrative Adviser. This project, which is subject to the approval of the Directors of the Northeastern Experiment Stations has two main objectives: (1) to evaluate presently available sweet corn hybrids and inbred lines for use under Northeast conditions for both fresh market and processing, and (2) to produce and regionally evaluate promising new lines and hybrid combinations for both of these uses.

Contributing projects are being submitted by six stations; New Jersey, Maryland, Pennsylvania, New York, Maine, and Massachusetts. Dr. Snell is Chairman of the Technical Committee, D. W. Barton is secretary, and Wm. Lachman is also on the three member executive committee.

This regional project, if approved, should not change the present interest and participation of the sweet corn breeders in the Northeastern Corn Improvement Conference.

Chairman Barton next reported on the National Sweet Corn Breeders Conference held in Chicago in December of 1955. An item of interest at this conference was the report that a base temperature of 45° seems to be better than a 50° base in measuring heat units for sweet corn. It also seemed to be better to use soil temperature for the early measurements and air temperature for the late measurements.

Wm. Lachman reported on the type of records deemed suitable for evaluating market ear type and processing ear type in sweet corn. He also discussed plant breeding nomenclature and abbreviations.

The meeting was then turned over to B. L. Pollack who acted as Chairman for a symposium on bacterial wilt of sweet corn.

J. J. Natti reported on studies of inoculation techniques conducted at Geneva, New York. The results of these experiments are summarized in table 1.

Table 1. Comparative results of 6 different methods of inoculating corn plants with Stewart's bacterial wilt.

Method of inoculation[1/]	Number of infected plants[2/] — Variety				
	North Star	Seneca Arrow	Golden 50	Golden Crown	Seneca Chief
Hypodermic needle	50	47	50	48	49
Carborundum	2	0	0	0	0
Inverted needle	48	44	43	46	48
Sewing machine needle	50	50	46	50	42
Multiple needle in leaf	6	3	1	2	0
Multiple needle in leaf whorl	14	8	0	2	2

1/ Hypodermic needle - bacterial suspension injected into base of stem by means of hypodermic needle.
Carborundum - plants dusted with carborundum and a single leaf of each plant then rubbed with a cheesecloth moistened in a bacterial suspension.
Inverted needle - bacterial suspension in the eye of an ordinary needle introduced in the base of the stem of the plant.
Sewing machine needle - bacterial suspension contained in the eye of a sewing machine needle introduced into the base of the stem of the plant.
Multiple needle in leaf - a single leaf placed on a sponge containing a bacterial suspension and the leaf punctured with a multiple needle. The multiple needle consisted of 35 #00 insect mounting needles arranged in a circle 1" in diameter and held in place by embedding the head of the needles in wax.
Multiple needle in leaf whorl - leaves of whorl punctured with the multiple needle and the leaf whorl then filled with the bacterial suspension.

2/ Fifty plants of each variety were inoculated by each method.

R. S. Filmer reported on the control of the corn flea beetle and the sweet potato beetle in New Jersey. Two generations of the corn flea beetle normally occur in New Jersey, the over-wintering generation and a second one in July and August. The corn flea beetle causes two types of injury, the first being to young plants soon after they emerge. The beetles become active around 65°F and may completely defoliate seedlings. For control a 5 percent DDT dust at 15 pounds per acre with the first treatment as soon as the corn is up followed by a 10-day dusting schedule with 3 to 5 applications. Sprays on the same schedule using one pound of 50 percent wettable powder per acre are also effective. Immultions may give some plant injury. Some resistance of flea beetle to DDT has been reported and under these conditions dieldrin may be used. Soil treatment with dieldrin at 3/4 to 3 pounds per acre was tried in Illinois. Applications of $1\frac{1}{4}$ pounds per acre or more controlled wilt. The recommended treatment was $1\frac{1}{4}$ to $1\frac{1}{2}$ pounds per acre.

B. L. Pollack described the screening of sweet corn lines for resistance to bacterial wilt and evaluation of inoculation techniques in 1955. Of particular interest are the 1955 ratings of the following regional inbreds for wilt resistance in the Pennsylvania trials:

Very susceptible: G146H, M2412-2, N.J. 112
Moderately susceptible: M21547-1-1, N.J. 116
Moderately resistant: M32, N.J. 143y, I5125
Resistant: S3-61, Expt. 5234 (hybrid)

Dr. Pollack noted additionally that selection for higher resistance was effective within some inbreds.

D. D. Nolan reported that the Northeast Plant Introduction Station at Geneva, New York had begun the evaluation of corn introductions with the 1953 season. More introductions were studied in 1954 and about 40 strains were evaluated in 1955. Data were obtained on bacterial wilt in 1954 and on corn borer in 1955.

R. M. Bailey discussed the processing of sweet corn hybrids in New England. The New England sweet corn canning industry is concentrated in Maine where it started shortly after the Civil War. The acreage in Maine has been decreasing and now is only about 1/3 of what it was 20 to 25 years ago. Primary reasons for the change are mechanization and changes in the market demand for sweet corn. Golden Cross Bantam is too late for production in Maine.

R. G. Rothgeb discussed the evaluation of sweet corn strains for Maryland.

R. S. Snell reported on breeding composites and what can be done with them. He indicated that breeding composites have been made at the New Jersey Agricultural Experiment Station within the Marcross, Carmelcross and Lincoln-Golden Cross season. They have also been made between the two possible adjacent seasons and among all three.

Crosses were made by pollinating with as wide a pollen mixture as possible over the required interval. Compositing was completed with as wide intra-pollination as possible over the necessary interval. Inbreeding was started at the end of one year of intracrossing in each composite for one series, and will start in 1956 on a second series intracrossed for 2 seasons.

The present New Jersey composites are based on wilt resistance. A genetically wider series should be made to include susceptibles. Segregating populations developed by inbreeding the composites should be selected by individual breeders to get the utmost in local adaptation. Appropriate techniques should be utilized for selecting out segregates for resistance to bacterial wilt, drought, heat; capacity for pollen restoration; or other characters.

New Jersey composites look promising but their worth is as yet unproved. Theoretically the breeding composite should give the maximum number of locally adapted inbreds from presently available breeding materials. Composites for any number of breeders can be effectively made at one place.

Business Meeting

A brief business meeting was held in which D. W. Barton was elected Chairman of the Sweet Corn Section and M. T. Jenkins was elected secretary.

Plans were formulated for uniform trials of 3 maturities of sweet corn in 1956.

MEETINGS OF THE FIELD CORN SECTION

In the absence of D. F. Jones, J. C. Anderson acted as Chairman of the Field Corn Section. The meeting was called to order by Chairman Anderson at 3:45 p. m. The first item of business was the report of the Committee on Eastland Hybrids.

Report of the Committee on Registration of Eastland Hybrids

L. L. Huber reported informally for the committee. He indicated that the name Eastland is being used by a commercial company in Pennsylvania and consequently was not suitable for use as a regional name.

It was MOVED by L. L. Huber and seconded by R. G. Rothgeb that the whole question of the regional designation of hybrids be laid on the table.

There was considerable discussion of this motion. G. H. Stringfield reported on the use of AES for designating regional hybrids in the North Central region. M. T. Jenkins also discussed present procedure in the North Central

Region concerned with the assigning of the AES designation to selected hybrids and the activities of the Southern Corn Improvement Conference in assigning designations to Dixie hybrids. L. L. Huber raised a question on the mechanics by which the Northeastern region might test experimental hybrids, produce them on a limited scale and then assign regional designations to them.

After some little discussion of this problem L. L. Huber withdrew his motion with the approval of the second.

The meeting broke up into committee groups for the different maturity classes at 4:45 p.m. Chairman Anderson instructed the committee to be ready to report on their plans for 1956 on Saturday morning.

The Saturday morning session of the Field Corn Section was called to order by Chairman Anderson at 9:20 a. m., in the Crystal Room of the Henry Hudson Hotel. The first item on the program was a further discussion of regional designations of hybrids.

It was MOVED by L. L. Huber that N. E. be substituted for Eastland as a regional name for the Northeast hybrids provided it met with the approval of the Northeastern Directors.

Motion seconded by H. M. Yegian and passed.

Chairman Anderson asked whether there were any comments or suggestions on the use of male sterility and restorers in the production of hybrid seed corn in the Northeastern region.

H. J. Otto reported that one hybrid of 200 maturity ($51A^T$ x B8) x NY16 has appeared fairly good in trials so far. NY16 carries a restorer.

G. H. Stringfield reported that $WF9^T$ x Oh51A and $Oh51A^T$ x WF9 seem to be performing satisfactorily in Ohio. He indicated that he has a strain of Oh51A with a restorer from Ia.153 that has been backcrossed 5 times to Oh51A and that seed is available to anyone desiring it.

There was considerable discussion of the nature of restoration and the reliability of restorer genes. O. H. Pearson stated that he thought the extrusion of the anther was independant of the amount of pollen produced. He commented on experience in testing restorer genes from different sources. The restorers that give only partial restoration are evidently subject to great environmental influence. Dr. Pearson indicated that it was his opinion that the main factor contributing to the favorable pollen production in Florida was high humidity.

Jan Buchert reported that an experiment at Connecticut showed no influence of photoperiod on pollen shedding.

H. T. Stinson studied amino acid patterns in sterile and fertile strains. He found definite pattern differences between sterile and fertile anthers with

a difference in alanine at the early microspore stage. The transfer of fertility restoring genes restored the original pattern. He suggested that the restorer gene cannot be considered entirely by itself but that its effect is conditioned by the genetic and cytologic environment. The genetic composition of the female parent is very important. He is testing allelism among various restorer genes.

A. P. Munson discussed the interaction of genes and cytoplasm in the production of phenotopic effects.

A. J. Ullstrup said that sterile tassels were more susceptible to rust on the glumes than fertile tassels. He also mentioned that 1067 strains have been obtained from M. M. Hoover and are being screened at Purdue for numerous characters.

L. L. Huber asked if a classification of Corn Belt lines with respect to disease resistance was available. A. J. Ullstrup replied he had prepared a list of resistant and susceptible lines. C103, B14, I159L1, B2, CI.28A and K148 seem most resistant to stalk rot. He indicated that stalk inoculation with Diplodia is a good method of evaluating general resistance to stalk rot.

A question was raised on the effect of soil fertility on stalk rot and it was pointed out that there is need for experimental work to determine the relations of nutrition to stalk rot.

R. G. Rothgeb raised the question on the amount of stalk rot among plants root lodged early last fall as a result of the hurricane.

L. L. Huber announced the release of the following inbred lines from Pennsylvania.

Line	Source
Pa 11 yellow	Early Surprise Variety
Pa 32 yellow	W159 x WM13
Pa 33 yellow	W159 x WM13
Pa 54 yellow	Ill. A x W23
Pa 70 yellow	Oh40B extract
Pa 86 yellow	(Ia.205 x Oh28) Ia.205

M. T. Jenkins raised a question on the preservation of local open-pollinated varieties.

R. M. Bailey reviewed the activities of the NE-9 regional project and indicated that Mr. Dolan would be glad to store seed of open-pollinated varieties if the states were not equipped to keep them.

It was MOVED by L. L. Huber that a one man committee be appointed to accumulate information as to the exact situation in the Northeastern states with respect to the preservation of open-pollinated varieties.

Seconded by R. G. Rothgeb and passed.

Chairman Anderson then called for the reports of the committees covering the various maturity groups.

Report of the Committee on the 200 Maturity

The inbreds including W103, WH, WD W59E, Mt42, Co106, CO107, CO109, CO110, and Co111 were grown at Ottawa, Ontario and Orono, Maine, for single-cross seed production. Total production at the two stations indicates that of the 45 possible combinations seed is available as follows: for at least 2 tests, 42: for 3 tests, 36: and for 4 tests, 26. Sufficient seed of the 3 remaining single-crosses was obtained for a single test.

R. J. Brawn
R. M. Bailey
F. Dimmock, Chairman

Report of the Committee on the 400 and 500 Maturity

Top cross tests with Pa54 x Pa11, Q83 x NY3 and Cornell 11 as tester parents conducted in 1955 were far from conclusive. The tests were conducted by Massachusetts, New York and Pennsylvania.

In none of the tests is there any obvious correlation between yield and moisture at harvest. Late combinations probably suffered greater reduction in yield than those on the earlier side. This was due to the pattern of rainfall distribution. Whatever inbreds are used in the production of new doubles it is suggested that considerable weight be placed on knowledge of the inbreds per se.

Any inbreds used in combinations with Pa54 x Pa11 should carry average or above stalk rot resistance and should not be inclined to "dirty" husking.

The evidence is not clear that Q83 x NY3 will make a satisfactory seed parent. It might be a possibility as a pollen parent. The root system is only fair.

The Cornell 11 combinations were all unsatisfactory. No inbred was good enough to hold it up. Lodging was complete.

L. L. Huber, Chairman

Report of the Committee on the 800 and 900 Maturity

Because of drouth conditions last summer only about $\frac{1}{2}$ of the proposed 3-way crosses provided sufficient seed for four complete tests. New Jersey, Connecticut, Pennsylvania, and Eastern States Farmers' Exchange requested tests.

The uniform test will be limited to 3 replications per location, plots 2 x 8 hills, 5 seeds per hill thinned to desired stand. Experimental design is to be randomized block.

The group will be divided according to single cross parents and these will have 3 double crosses as common entries; Ohio W-64, U.S. 13, N.J. #8.

Three-way crosses to be made in 1956 include all those unsuccessfully tried in 1955 plus whichever additional ones the corn breeders at New Jersey and Maryland, where the crosses are to be made, deem worthy.

J. C. Anderson, Chairman

Meeting was adjourned at 11:45 a. m.

ROSTER OF ATTENDANCE

Canada		
Dimmock, Fred	Central Experiment Farm	Ottawa
Connecticut		
Buchert, Jan	Connecticut Agr.Expt. Station	New Haven
Munson, A. P.	"	"
Stinson, Harry T.	"	"
Swanson, C. L. W.	"	"
Delaware		
Indyk, Henry W.	Delaware Agr. Expt. Station	Newark
Rahn, E. M.	"	"
Somers, G. Fred	"	"
Indiana		
Ullstrup, Arnold J.	Purdue Univ. Agr.Expt. Station	Lafayette
Maine		
Bailey, R. M.	Maine Agr. Expt. Station	Orono
Maryland		
Jenkins, M. T.	USDA	Beltsville
Rothgeb, R. G.	Univ. of Maryland Agr.Expt.Sta.	College Park
Massachusetts		
Lachman, W. H.	Massachusetts Agr. Expt. Station	Amherst
Yegian, Kriant M.	"	"
Matheson, J. A.	Eastern States Farmers' Exchange	W.Springfield
Matthews, David L.	" "	"
Pearson, O. H.	" "	"
New Hampshire		
Higgins, Leroy J.	New Hampshire Agr.Expt. Station	Durham
New Jersey		
Anderson, J. C.	Rutgers University	New Brunswick
Cappellini, Raymond	"	"
Filmer, R. S.	"	"
Snell, R. S.	"	"
Ulrich, Valentin	"	"

New York

Dolan, Desmond	Plant Introduction Station	Geneva
Barton, Donald W.	New York Agr. Expt. Station	"
Natti, John J.	" "	"
Barnes, Jack	Cornell University	Ithaca
Johnson, A. A.	"	"
Otto, Harley J.	"	"
Walden, D. B.	"	"
Wiggan, R. G.	"	"

Ohio

Stringfield, G. H.	Ohio Agric. Expt. Station	Wooster

Pennsylvania

Butler, Dan.	Penna. Farm Bureau Coop.	Harrisburg
Huber, L. L.	Pennsylvania Agr.Expt. Station	University Park
Pollack, B. L.	" "	"

Virginia

Caspor	Blandy Expt. Farm	Boyce

West Virginia

Bolyard, V. A.	West Virginia Agr.Expt.Station	Morgantown
Haltiwanger, W. L.	" "	"

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Administrative Advisor

G. Fred Somers

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R. M. Bailey, Vice-Chairman
R. S. Snell, Member-at-large
M. T. Jenkins, Secretary

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D. F. Jones, Chairman
L. L. Huber
R. G. Rothgeb

Committee on Sweet Corn Investigations

D. W. Barton, Chairman
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W. H. Lachman
M. T. Lewis
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Committee on Uniform Tests of 200 Maturity

F. Dimmock, Chairman
R. I.Brawn
R. M. Bailey

Committee on Uniform Tests of 300, 400 and 500 Maturity

L. L. Huber, Chairman
R. G. Wiggans
H. M. Yegian

Committee on Uniform Tests of 600 and 700 Maturity

D. F. Jones, Chairman

Committee on Uniform Tests of 800 and 900 Maturity

J. C. Anderson, Chairman
R. G. Rothgeb

Committee on Pollinating Supplies

D. L. Matthews, Chairman
R. S. Snell
H. L.Everett

Committee on Nomenclature for Cytoplasmic Sterility and Restorers

D. F. Jones, Chairman
R. S. Snell
H. L. Everett
G. H. Stringfield

Committee on Diseases and Insect Pests of Corn

C. C. Wernham, Chairman
J. C. Anderson
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Committee on the Preservation of Open-Pollinated Varieties

R. M. Bailey, Chairman